**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 6**
**HOUSTON BRANCH**
**10625 FALLSTONE RD.**
**HOUSTON, TEXAS 77099**

**MEMORANDUM**

Date: February 20, 1997

Subject: **Contract Laboratory Program Data Review**

From: Melvin L. Ritter, ESAT RPO, 6MD-HC M L Ritter 2/24/97

To: Lon Biasco, 6SF-RA

Site: WILCOX OIL

Case#: 9611G675

SDG#: WS01-I

The EPA Region 6 Houston Branch ESAT data validation team has completed a review of the submitted data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review and assessment report for this case.

The data package was found to be:

( ) Acceptable: No major problems with data package.

(X) Provisional: Use of data requires caution.
Data is acceptable for Regional use. Problems are noted in the review report.

( ) Unacceptable: Some or all of data should not be used.
Problems are noted in the review report.

Questions regarding the data review report can be addressed to me.

Attachments

cc: R. Flores, Region 6 CLP/TPO
M. El-feky, Region 6 Data Coordinator

Files (2)

9417636

**LOCKHEED MARTIN SERVICES GROUP**
**10101 SOUTHWEST FREEWAY, SUITE 500**
**HOUSTON, TEXAS 77074**

**MEMORANDUM**

**DATE:** February 12, 1997

**TO:** Dr. Melvin Ritter, ESAT RPO, Region VI

**FROM:** Dr. Tom Chiang, ESAT ETM, Region VI

**SUBJECT:** SUPERFUND Data Review

**REF:** TDF # 6-7207A ESAT File # I2087
ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case # 9611G675
SDG # WS01-I
Site WILCOX OIL

**COMMENTS:**

I. CONTRACTUAL ASSESSMENT OF DATA PACKAGE:

The contractual compliance was not determined for this data package per EPA request.

II. TECHNICAL/USABILITY ASSESSMENT OF DATA PACKAGE:

A total of 200 results were reviewed for this data package. The data package is technically provisional because of the following problems.

A. The reviewer qualified approximately five percent of the results.

B. One thallium analysis had inconsistent replicate ICP readings.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 6**
**HOUSTON BRANCH**
**10625 FALLSTONE ROAD**
**HOUSTON, TEXAS 77099**

# INORGANIC REGIONAL DATA ASSESSMENT

**CASE NO.** 9611G675
**LABORATORY** WESTON
**CONTRACT #** N/A
**SDG #** WS01-I
**SOW#** ILM03.0
**ACCT #** 7FAXJN40 **SF #** FAXUZZ

**SITE** WILCOX OIL
**NO. OF SAMPLES** 8
**MATRIX** SOIL
**REVIEWER (IF NOT ESD)** ESAT
**REVIEWER'S NAME** Linda Hoffman
**COMPLETION DATE** February 12, 1997

**SAMPLE NO.:**

| | |
|---|---|
| WS01-I | WS05-I |
| WS02-I | WS06-I |
| WS03-I | WS07-I |
| WS04-I | WS08-I |

DATA ASSESSMENT SUMMARY

| | ICP | FAA | HG | CYANIDE | TPH |
|---|---|---|---|---|---|
| 1. HOLDING TIMES | O | O | O | O | N/A |
| 2. CALIBRATIONS | O | O | O | O | O |
| 3. BLANKS | O | O | O | O | O |
| 4. MATRIX SPIKES | M | O | O | O | O |
| 5. DUPLICATE ANALYSIS | M | O | O | O | O |
| 6. ICP QC | O | | | | |
| 7. FAA QC | | M | | | |
| 8. LCS | O | O | O | O | O |
| 9. SAMPLE VERIFICATION | O | O | O | O | O |
| 10. OTHER QC | N/A | N/A | N/A | N/A | N/A |
| 11. OVERALL ASSESSMENT | M | M | O | O | O |

O = Data had no problems.
M = Data qualified because of major or minor problems.
Z = Data unacceptable.
N/A = Not applicable.

**ACTION ITEMS:**

**AREAS OF CONCERN:** For aluminum, the matrix spike recovery was above 125 percent and the duplicate difference was greater than 35 percent. One thallium analysis had a correlation coefficient greater than 20 percent.

**NOTABLE PERFORMANCE:**

**INORGANIC QA REVIEW**
**CONTINUATION PAGE**

**Case 9611G675 SDG WS01-I Site WILCOX OIL Lab WESTON**

**COMMENTS:** The data package consisted of eight soil samples for total metals and cyanide analyses by ILM03.0 and TPH analysis by EPA method 418.1. The laboratory analyzed sample WS01-I as the QC sample for metals and cyanide and sample WS07-I as the QC sample for TPH.

This data package is technically provisional because of problems with a matrix spike recovery, a duplicate difference, and inconsistent replicate ICP readings. The technical usability of all reported sample results is appropriately indicated by ESAT's final data qualifiers in the attached Data Summary Sheet.

**NOTE:** THE FOLLOWING REVIEW NARRATIVE ADDRESSES ONLY TECHNICAL ISSUES. THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY.

1. **Holding Times:** Acceptable. All required holding time and sample preservation criteria were met.

2. **Calibrations:** Acceptable. All calibrations were acceptable. However, for mercury and cyanide, the laboratory failed to perform the CCV and CCB analyses directly after the ICV/ICB analyses. This omission did not technically affect the sample results because the ICV/ICB and other CCV/CCB analyses met QC criteria.

3. **Blanks:** Acceptable. All preparation and calibration blank concentrations met the SOW's QC criteria although the laboratory reported 16 analytes in the blanks. The following results above the CRDL's were affected as indicated by the calibration blanks.

   The chromium concentration in samples WS01-I, WS03-I, and WS06-I is considered undetected.

   The chromium concentration in sample WS07-I is biased high.

   All other results affected by blank concentrations were below the CRDL's.

4. **Pre-digestion/Pre-distillation Matrix Spike Recovery:** Provisional. The reviewer qualified as estimated and biased high all aluminum results because the matrix spike recovery was above the QC limit. The antimony matrix spike recovery was only marginally low, so the reviewer did not qualify the antimony results.

5. **Duplicate Analysis:** Provisional. The laboratory reported duplicate differences above the SOW QC limits for aluminum, iron, and lead (by ICP). Since the iron difference met technical QC criteria and the lead difference was only marginally above the technical QC limit, the reviewer did not qualify the iron or lead results. The reviewer did qualify as estimated all aluminum results because of inconsistent duplicate results.

6. **ICP Quality Control:**

   Serial Dilution: Acceptable. The laboratory reported a zinc serial dilution difference that was only marginally above the QC limit, so the reviewer did not qualify the zinc results.

   Interference Check Sample: Acceptable. Acceptable ICS results indicated satisfactory interelement and background correction.

   Coefficient of Variation: Acceptable. Replicate ICP readings were consistent.

7. **Furnace Atomic Absorption Quality Control:**

   FAA Analytical Spike Recovery: Provisional. The reviewer qualified as estimated and biased low the thallium result for sample WS04-I because the analytical spike recovery was below the QC limit. The analytical spike recoveries for selenium in samples WS07-I and WS08-I were above the QC limits. Since selenium was undetected in these two samples, result qualification was not necessary.

   FAA Duplicate Injection Relative Standard Deviation: Acceptable. All percent relative standard deviations for duplicate injections were acceptable.

   Method of Standard Addition: Acceptable. One arsenic and one selenium sample required MSA analyses. The correlation coefficients for the MSA analyses met QC criteria.

8. **Laboratory Control Sample:** Acceptable. All LCS recoveries were acceptable.

**INORGANIC QA REVIEW**
**CONTINUATION PAGE**

**Case 9611G675 SDG WS01-I Site WILCOX OIL Lab WESTON**

9. **Sample Verification:** The reviewer detected a few reporting errors in the data package. A list of items requiring laboratory clarification and correction is attached.

10. **Other QC:** Not applicable.

11. **Overall Assessment:** The data package is technically provisional because of the following problems.

    The reviewer qualified one thallium and all aluminum results because of matrix related problems.

    The reviewer further qualified all aluminum results because of poor laboratory precision.

## INORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the inorganic data review process.

**U** Undetected at the laboratory reported detection limit (IDL).

**L** Reported concentration is between the IDL and the CRDL.

**J** Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, FAA spike recovery, etc.

**R** Result is unusable.

**F** A possibility of a false negative exists.

**UC** Reported concentration should be used as a raised detection limit because of apparent blank contamination.

**^** High bias. Actual concentration may be lower than the concentration reported.

**v** Low bias. Actual concentration may be higher than the concentration reported.

DATA SUMMARY

Case No.: 9611G675 SDG. No.: WS01-I Reviewer: L. Hoffman
Laboratory: WESTON Matrix: SOIL Units: mg/Kg

| EPA TR #=> | WS01-I | FLAG | WS02-I | FLAG | WS03-I | FLAG | WS04-I | FLAG | WS05-I | FLAG | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ALUMINUM | 1750 | J^ | 86.0 | J^ | 641 | J^ | 22100 | J^ | 1070 | J^ | |
| ANTIMONY | 4.0 | U | 2.7 | U | 2.8 | U | 7.7 | L | 4.0 | U | |
| ARSENIC | 1.4 | L | 1.1 | LUC | 1.2 | L | 6.5 | | 8.7 | | |
| BARIUM | 22.2 | L | 2.2 | L | 24.0 | L | 191 | | 44.2 | L | |
| BERYLLIUM | 0.10 | LUC | 0.07 | U | 0.07 | U | 1.2 | LJ^ | 0.11 | LUC | |
| CADMIUM | 0.53 | U | 0.36 | U | 0.37 | U | 0.60 | U | 0.52 | U | |
| CALCIUM | 1020 | L | 161 | L | 2060 | | 9460 | | 4420 | | |
| CHROMIUM | 2.7 | UC | 0.30 | LUC | 2.0 | UC | 24.3 | | 4.7 | | |
| COBALT | 1.9 | LUC | 0.48 | U | 1.5 | LUC | 10.3 | L | 2.8 | LUC | |
| COPPER | 5.5 | L | 2.5 | LJ^ | 5.7 | | 42.5 | | 100 | | |
| IRON | 2330 | | 548 | | 2940 | | 19800 | | 8930 | | |
| LEAD | 25.8 | | 8.7 | | 37.8 | | 47000 | | 3660 | | |
| MAGNESIUM | 278 | L | 32.4 | L | 263 | L | 5080 | | 598 | L | |
| MANGANESE | 68.4 | | 10.4 | | 249 | | 701 | | 86.4 | | |
| MERCURY | 0.05 | U | 0.06 | U | 0.04 | U | 0.07 | U | 0.11 | | |
| NICKEL | 7.8 | LJv | 1.2 | U | 4.1 | LJv | 20.9 | | 11.6 | | |
| POTASSIUM | 437 | L | 90.4 | U | 348 | L | 3300 | | 293 | L | |
| SELENIUM | 0.44 | U | 0.35 | U | 0.29 | U | 1.0 | U | 0.84 | L | |
| SILVER | 0.45 | U | 0.31 | U | 0.32 | U | 2.0 | L | 0.67 | L | |
| SODIUM | 144 | LJv | 124 | L | 108 | L | 289 | L | 1510 | | |
| THALLIUM | 0.39 | U | 0.31 | U | 0.26 | U | 0.46 | UJv | 0.35 | U | |
| VANADIUM | 13.2 | | 2.9 | L | 7.6 | L | 38.1 | | 10.9 | L | |
| ZINC | 33.6 | | 7.6 | | 27.2 | | 127 | | 66.4 | | |
| CYANIDE | 0.61 | U | 0.56 | U | 0.43 | U | 2.0 | | 0.70 | U | |
| TPH | 427000 | | 494000 | | 293000 | | 1370 | | 875000 | | |
| % SOLIDS | 69.7 | | 77.6 | | 96.0 | | 53.6 | | 71.6 | | |

DATA SUMMARY

Case No.: 9611G675 SDG. No.: WS01-I Reviewer: L. Hoffman
Laboratory: WESTON Matrix: SOIL Units: mg/Kg

| EPA TR #=> | WS06-I | FLAG | WS07-I | FLAG | WS08-I | FLAG | FLAG | FLAG | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| ALUMINUM | 957 | J^ | 1840 | J^ | 9720 | J^ | | | |
| ANTIMONY | 3.6 | U | 3.0 | U | 4.7 | U | | | |
| ARSENIC | 2.6 | | 3.2 | | 2.8 | | | | |
| BARIUM | 47.4 | | 24.7 | L | 129 | | | | |
| BERYLLIUM | 0.10 | LUC | 0.15 | LUC | 0.58 | LUC | | | |
| CADMIUM | 0.47 | U | 0.40 | U | 0.70 | LJv | | | |
| CALCIUM | 1510 | | 432 | L | 3110 | | | | |
| CHROMIUM | 3.1 | UC | 3.4 | J^ | 13.4 | | | | |
| COBALT | 2.8 | LUC | 1.7 | LUC | 5.9 | LJ^ | | | |
| COPPER | 74.3 | | 11.0 | | 13.9 | | | | |
| IRON | 8370 | | 6180 | | 10800 | | | | |
| LEAD | 2260 | | 14.0 | | 77.8 | | | | |
| MAGNESIUM | 290 | L | 157 | L | 999 | L | | | |
| MANGANESE | 36.7 | | 43.6 | | 938 | | | | |
| MERCURY | 0.05 | U | 0.04 | U | 0.06 | U | | | |
| NICKEL | 8.8 | L | 4.7 | L | 17.4 | | | | |
| POTASSIUM | 314 | L | 238 | L | 1350 | L | | | |
| SELENIUM | 0.44 | L | 0.30 | U | 0.47 | L | | | |
| SILVER | 0.92 | L | 0.46 | L | 0.90 | L | | | |
| SODIUM | 1450 | | 84.0 | L | 115 | L | | | |
| THALLIUM | 0.32 | U | 0.27 | U | 0.42 | U | | | |
| VANADIUM | 9.7 | L | 11.0 | | 26.3 | | | | |
| ZINC | 51.7 | | 41.8 | | 160 | | | | |
| CYANIDE | 0.44 | U | 0.35 | U | 0.95 | | | | |
| TPH | 378000 | | 85700 | | 23200 | | | | |
| % SOLIDS | 75.9 | | 92.4 | | 53.4 | | | | |

MEMORANDUM

To: M. Ritter

From: T. Chiang

Subject: 9611G675
SDG WS01-I
Laboratory Resubmission

Date: February 12, 1997

Copies: M. Perez
File

Ref: MEM1533
TDF No. 6-7207A
I2087

Attached is a resubmission request of issues needing clarification for Case 9611G675 SDG WS01-I. The samples in this case were analyzed by:

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, IL 60466-5200

Attention: Charles R. Maw

These laboratory resubmissions are necessary to enable the Environmental Protection Agency to maximize the usability of the laboratory results in this data package.

In Reference to
Case: 9611G675
SDG No.: WS01-I
Laboratory: WESTON

**In reference to data for the following sample numbers:**

All samples in this SDG.

**Summary of Questions/Issues Discussed:**

1. On Form 1 (p. 42), the selenium result should have an "S" flag in the "Q" column since MSA was performed. Please correct and resubmit page 42.

2. Sample WS04-I was diluted by 2X, but the dilution did not appear to be necessary. Please explain the reason for dilution.

Weston Environmental Metrics, Inc.
2417 Bond Street
University Park, Illinois 60466-3182
708-534-5200 • Fax 708-534-5211

MANAGERS DESIGNERS/CONSULTANTS



February 21, 1997

Ms. Diane Williams
Roy F. Weston, Inc.
5599 San Felipe, Suite 700
Houston, TX 77056-2721

Work Order No. 04606-056-026-0600

RE: USEPA-Wilcox Oil
REVISED REPORT
RFW Lot 9611G675

Dear Ms. Williams:

Enclosed is the revised Metals Form XIV for the project and RFW#s listed above. Due to a computer error, there was a discrepancy between the date reported in the raw data and the actual analysis date. The date reported in the raw data and on CLP Form XIV was two days behind the actual analysis date. If you have any questions please contact me at 708-534-5200.

Very truly yours,

Weston Environmental Metrics, Inc.

Charles R. Maw
Project Manager

sj

Approved By:

Michael J. Healy
Vice President/Laboratory Manager

14
ANALYSIS RUN LOG

Lab Name: WESTON_EMI_____ Contract: _____

Lab Code: WESEMI Case No.: _____ SAS No.: _____ SDG No.:WS-01_

Instrument ID Number: HG4_____ Method: CV

Start Date: 12/03/96 End Date: 12/03/96

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AL | SB | AS | BA | BE | CD | CA | CR | CO | CU | FE | PB | MG | MN | HG | NI | K | SE | AG | NA | TL | V | ZN | CN |
| S0.0 | 1.00 | 1825 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| S0.2 | 1.00 | 1827 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| S0.5 | 1.00 | 1829 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| S1.0 | 1.00 | 1832 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| S3.0 | 1.00 | 1834 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| S5.0 | 1.00 | 1836 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| ICV | 1.00 | 1839 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| ICB | 1.00 | 1841 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| CRA | 1.00 | 1843 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| PBS | 1.00 | 1845 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| LCSS | 1.00 | 1848 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-01 | 1.00 | 1850 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-01_D | 1.00 | 1852 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-01_S | 1.00 | 1854 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-02 | 1.00 | 1857 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-03 | 1.00 | 1859 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-04 | 1.00 | 1901 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-05 | 1.00 | 1903 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| CCV | 1.00 | 1906 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| CCB | 1.00 | 1908 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-06 | 1.00 | 1910 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-07 | 1.00 | 1912 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| WS-08 | 1.00 | 1915 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| CCV | 1.00 | 1917 | | | | | | | | | | | | | | | | X | | | | | | | | | |
| CCB | 1.00 | 1919 | | | | | | | | | | | | | | | | X | | | | | | | | | |

Concentration 03 LB 2/13/97

09 01 Dec 1996 Folder: 120396V Page 1
Protocol: MERCURY VAPOR AUTOANALYZER

| Line | Conc. | Units | SD/RSD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|

*** Standard: 1 Rep: 1 Seq: 0 18:25:09 01 Dec 1996 HG

Hg .0000 ppb 937
Ave. Int. = 937 S. D. = 0

*** Standard: 2 Rep: 1 Seq: 1 18:27:28 01 Dec 1996 HG

Hg .2000 ppb 7411
Ave. Int. = 7411 S. D. = 0

*** Standard: 3 Rep: 1 Seq: 2 18:29:47 01 Dec 1996 HG

Hg .5000 ppb 16968
Ave. Int. = 16968 S. D. = 0

*** Standard: 4 Rep: 1 Seq: 3 18:32:06 01 Dec 1996 HG

Hg 1.000 ppb 34144
Ave. Int. = 34144 S. D. = 0

*** Standard: 5 Rep: 1 Seq: 4 18:34:25 01 Dec 1996 HG

Hg 3.000 ppb 100440
Ave. Int. = 100440 S. D. = 0

*** Standard: 6 Rep: 1 Seq: 5 18:36:47 01 Dec 1996 HG

Hg 5.000 ppb 164721
Ave. Int. = 164721 S. D. = 0

Paul F. Kenny 12/3/96

Cheryl L Boyd 12/13/96

Due to a computer error in the raw data the date is incorrect. The actual date of analysis 12/03/96.

LB
2/13/97